Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

16. (currently amended) A process for production of an artificial tooth substitute to be fitted on a prepared dental stump comprising the steps of:

(1) ~~selecting a~~ processing ceramic powder to form a homogeneous blank of porous ceramic material;

(2) determining a relative density ρ_R and an achievable relative density ρ_S after sintering for the blank of porous ceramic material selected in step (1);

(3) ~~scanning and digitizing a three-dimensional outer and inner surface of a positive model of a skeletal structure for the artificial tooth substitute to obtain data~~ calculating an enlargement factor (f) for the obtained data in accordance with the following

$$f = \sqrt[3]{\frac{\rho_S}{\rho_R}}$$

where ρ_R is the relative density and ρ_S is the achievable relative density after sintering determined in step (2);

(4) ~~calculating an enlargement factor (f) for the obtained data in accordance with the following~~

~~$$f = \sqrt[3]{\frac{\rho_S}{\rho_R}}$$~~

~~where ρ_R is the relative density and ρ_S is the achievable~~

~~relative density after sintering determined in step (2);~~

scanning and digitizing a three-dimensional outer and inner surface of a positive model of a skeletal structure for the artificial tooth substitute to obtain data;

(5) enlarging the obtained data linearly in all directions by the enlargement factor (f) calculated in step ~~(4)~~ (3) thereby compensating precisely for sinter shrinkage to obtain modified data for an enlarged model;

(6) transferring the modified data to a control unit of a processing machine;

(7) processing the blank of porous ceramic material selected in step (1) in the processing machine and removing material therefrom to produce a design form of the enlarged model;

(8) sintering the design form of porous ceramic material to obtain a skeletal structure having precise end dimensions; ~~and~~

(9) facing the skeletal structure as desired to form the artificial tooth substitute; and

(10) repeating steps (1) through (9) for each artificial tooth substitute to be produced.

17. (previously presented) A process according to claim 16, wherein the artificial tooth substitute is formed with fine run-out margins.

18. (previously presented) A process according to claim 16, wherein the sintering of the enlarged model comprises sintering to a density within the range of 90 to 100% of the achievable

relative density.

19. (previously presented) A process according to claim 16, wherein the sintering of the enlarged model comprises sintering to a density within the range of 96 to 100% of the achievable relative density.

20. (previously presented) A process according to claim 16, wherein the sintering of the enlarged model comprises sintering to a density within the range of greater than 99% of the achievable relative density.

21. (previously presented) A process according to claim 16, wherein the blank is a presintered blank of pressed fine ceramic powder.

22. (previously presented) A process according to claim 16, wherein the processing includes processing the blank in a first rough machining and then a second final machining.

23. (previously presented) A process according to claim 16, wherein, prior to the processing, the blank is heat treated at temperatures in the range from 50 to 200°C for a duration of 2 to 20 hours.

24. (previously presented) A process according to claim 16, wherein, prior to the processing, the blank is heat treated at temperatures in the range from 90 to 150°C for a duration of 2 to 6 hours.

25. (previously presented) A process according to claim 23, wherein the processing of the blank into the enlarged model follows the heat treatment.

26. (previously presented) A process according to claim 24, wherein the processing of the blank into the enlarged model follows the heat treatment.

27. (previously presented) A process according to claim 21, including a step of presintering the blank for 0.5 to 6 hours at a temperature of at least 450°C.

28. (previously presented) A process according to claim 16, wherein the ceramic material is selected from the group consisting of Al_2O_3, TiO_2, MgO, Y_2O_3, zircon oxide mixed crystal $Zr_{1-x}Me_x O_{2-(\frac{4n}{2})x}$, and mixture thereof, where Me is a metal which is present in the oxide form as a bi-, tri-, or tetravalant cation ($n = 2, 3, 4$ and $0 \leq x \leq 1$) and stabilises the tetragonal and/or cubic phase of the zircon oxide.

29. (previously presented) A process according to claim 28, wherein the ceramic material is mixed with an organic binding agent selected from the group consisting of polyvinyl alcohols (PVA), polyacrylic acids (PAA), celluloses, polyethyleneglucols, and mixtures thereof.

30. (previously presented) A process according to claim 29, wherein the proportion of binding agent lies in the range from

0.1 to 45 vol%.

31. (previously presented) A process according to claim 29, wherein the proportion of binding agent lies in the range from 0.1 to 5 vol%.

32. (currently amended) A process for production of an artificial tooth substitute to be fitted on a prepared dental stump comprising the steps of:

(1) scanning and digitizing a three-dimensional outer and inner surface of a positive model of a skeletal structure for the artificial tooth substitute to obtain data;

(2) determining an enlargement factor (f) for the obtained data in accordance with the following

$$f = \sqrt[3]{\frac{\rho_S}{\rho_R}}$$

where ρ_R is the relative density of a blank and ρ_S is the achievable relative density after sintering;

(3) enlarging the obtained data linearly in all directions by the enlargement factor (f) thereby compensating precisely for sinter shrinkage to obtain modified data for an enlarged model;

(4) transferring the modified data to a control unit of a processing machine for generating a desired path of a tool;

(5) ceasing scanning and digitizing;

(6) processing ~~a~~ ceramic powder to form a homogeneous blank of porous ceramic material in the processing machine wherein material is removed by the tool moving along the devised path to produce a design form of the enlarged model;

(7) dense-sintering the design form of porous ceramic

material to obtain a skeletal structure having precise end dimensions; ~~and~~

(8) facing the skeletal structure as desired to form the artificial tooth substitute; and

(9) repeating steps (1) through (8) for each artificial tooth substitute to be produced.

33. (currently amended) A process for production of an artificial tooth substitute to be fitted on a prepared dental stump comprising the steps of:

(1) ~~selecting a~~ processing ceramic powder to form a homogeneous blank of porous ceramic material having a relative density ρ_R;

(2) sintering a further piece of the porous ceramic material under a set of sintering conditions to obtain an achievable relative density ρ_S of the ceramic material after sintering;

(3) ~~scanning and digitizing a three-dimensional outer and inner surface of a positive model of a skeletal structure for the artificial tooth substitute to obtain data~~ determining an enlargement factor (f) for the obtained data in accordance with the following

$$f = \sqrt[3]{\frac{\rho_S}{\rho_R}}$$

where ρ_R is the relative density of the preprepared blank and ρ_S is the achievable relative density of the porous ceramic material after sintering obtained in step (2);

(4) ~~determining an enlargement factor (f) for the obtained data in accordance with the following~~

~~$$f = \sqrt[3]{\frac{\rho_S}{\rho_R}}$$~~

~~where ρ_R is the relative density of the preprepared blank and ρ_S is the achievable relative density of the porous ceramic material after sintering obtained in step (2)~~ scanning and digitizing a three-dimensional outer and inner surface of a positive model of a skeletal structure for the artificial tooth substitute to obtain data;

(5) enlarging the obtained data linearly in all directions by the enlargement factor (f) thereby compensating precisely for sinter shrinkage to obtain modified data for an enlarged model;

(6) transferring the modified data to a control unit of a processing machine;

(7) processing the blank of porous ceramic material in the processing machine and removing material therefrom to produce a design form of the enlarged model;

(8) sintering under the set of sintering conditions of step (b) the design form of porous ceramic material to obtain a skeletal structure having precise end dimensions; ~~and~~

(9) facing the skeletal structure as desired to form the artificial tooth substitute; and

(10) repeating steps (1) through (9) for each artificial tooth substitute to be produced.

34. (previously presented) A process according to claim 28, wherein the ceramic material is mixed with an organic binding agent comprising thermoplastics.

41. (previously presented) A process according to claim 16,

wherein the enlargement factor is calculated to .000x, where x is an integer.

42. (previously presented) A process according to claim 32, wherein the enlargement factor is calculated to .000x, where x is an integer.

43. (previously presented) A process according to claim 33, wherein the enlargement factor is calculated to .000x, where x is an integer.